IN THE SPECIFICATION

On page 5, please replace the paragraph beginning at line 12 with the following paragraph:

In the preferred embodiment, the oxygen delivery substrate is located on the surface of a balloon of an angioplasty catheter. The oxygen delivery substrate consists of a porous polymer at a thickness between 20 and 200 µm being integrated into the balloon structure or being wrapped around the balloon. The thin film polymer membrane contains an oxygenated fluorocarbon solution (liquid oxygen carrier). The substrate is sealed with a housing preventing premature release of the treatment substance. Prior to the intended angioplasty procedure, the housing is removed from the device, and it is advanced into the blood circulation. At the site of intervention, the substrate may be brought in contact with the vessel wall. Release kinetics of said liquid oxygen carrier are modified by changes of local temperatures between 0-50° Celsius, for instance by means for injection of cold and warm fluids via the guiding catheter prior to inflation of the balloon. The oxygen enters the blood vessel wall by diffusion. Contact of the device with the target tissue improves oxygen delivery. The local increase in oxygen molecules creates an excess of oxygen free radicals when either ionizing radiation with beta-particle emitters such as Sr-90/Y-90 or P-32 or using ultraviolet light is applied to the target area. A simultaneous application of the oxygenated fluorocarbon solution with the vessel irradiation using ionizing radiation or ultraviolet light is the preferred treatment modality for restenosis prevention. The capacity of oxygen saturation of end organ increases with the improvement

of blood flow. Therefore, in another embodiment, the oxygen carrier is released from the perfusion balloon catheter. The perfusion balloon catheter provides flow of blood from the proximal end of the occluding balloon into the vascular bed distal to the blockage, and thus increases the distribution of the oxygenated fluorocarbon solution to the end organ. Perfusion of blood through the occluded balloon is permitted and the blood will be oxygenated at the distal end of the balloon behind the blood flow blockage. In yet another embodiment, the oxygen delivery source is delivered from the substrate which is part of a coronary wire. The distal tip of a coronary wire is coated with the membrane carrying the liquid fluorocarbon solution or is modified such that the oxygen carrier membrane forms a tube around a retrievable metallic core of the wire. The wire is placed in the distal coronary artery, the core is retrieved and the tube carrying the oxygen source is floating in the blood stream. Thereafter, a conventional balloon catheter is advanced over the wire to treatment zone proximal to the oxygen delivery source and a prolonged balloon inflation can be performed without inducing myocardial ischemia. In another embodiment, the metallic wire is porous. The wire is impregnated with the liquid oxygen carrier at its distal tip. In yet another embodiment, the distal tip of the wire forms a plastic thread which is tightly connected to the metallic portion of the wire.

On page 8, please replace the paragraph beginning at line 15 with the following paragraph:

Fig. 3 shows a schematic longitudinal view of an perfusion balloon catheter (11) serving as the substrate

source (6) for the liquid oxygen carrier. In this embodiment, the oxygen delivery source ~~membran~~ membrane (7) is located on the surface of the balloon (5) and proximally (12) and distally (13) to the balloon catheter (11) on the shaft (9) of the catheter. The shaft (9) of the perfusion balloon catheter includes the guide wire lumen (8), a balloon inflation lumen (14), and a perfusion fluid lumen (15). The perfusion fluid lumen (15) allows perfusion of blood or transport of therapeutic fluids (temperature between 0-50°C) through the inflated balloon. The perfusion fluid lumen (15) is designed ~~to allow~~and provides means for allowing injection of therapeutic liquids or drugs with temperatures between 0 and 50° C to modify the release kinetics of the oxygen carrier from the substrate. Holes beyond the proximal end (16) of the balloon connect a pathway for blood through the shaft (9) of the perfusion balloon catheter to the distal end of the catheter (17). The perfusion fluid lumen (15) connects to the holes at the proximal (16) and distal end (17) of the balloon. The perfusion holes (16, 17) are penetrating through the membrane (12, 13) carrying the liquid oxygen carrier. Thus, blood perfusion through the balloon carrier blood that is oxygenated by the membrane at the proximal end of the inflated balloon and is oxygenated beyond the distal end of the inflated balloon by the membrane after passage through the balloon. The guide wire (25) contains the liquid oxygen carrier (7) at its distal tip (28). A stent (29) is mounted on the deflated balloon (5). Upon inflation of the balloon via its lumen (14), the stent (29) is expanded and deployed into the vessel.